

CLAIMS:

1. A process for the manufacture of a crystalline molecular sieve layer, which process comprises:

5

a) impregnating a porous support through at least one surface thereof, with an impregnating material which is not carbonised prior to deposition on the support of a crystalline molecular sieve layer,

10

b) hydrothermally growing a crystalline molecular sieve layer on a surface of the impregnated porous support; and

c) substantially completely removing the impregnating material.

15

2. A process as claimed in claim 1 wherein the impregnating material is an organic resin.

3. A process as claimed in claim 2 wherein the organic resin is a hydrocarbon resin.

20

4. A process as claimed in claim 3 wherein the hydrocarbon resin is an acrylic resin.

5. A process as claimed in claim 3 wherein the hydrocarbon resin is a hydrocarbon wax.

25

6. A process as claimed in any of the preceding claims wherein the impregnating material substantially fills the pores of the support.

30

7. A process as claimed in claim 1 wherein the surface on which the crystalline molecular sieve layer is grown has deposited thereon molecular sieve seed crystals prior to the hydrothermal growth, and wherein the porous support is impregnated before or after deposition of the molecular sieve seeds.

8. A process as claimed in claim 7 wherein the molecular sieve seeds are deposited prior to impregnation and the impregnating material substantially fills the pores of the support or the pores of the support and those between the seeds.

5

Sub A2)

9. A process as claimed in either of claims 7 or claim 8 wherein the molecular sieve seeds are present as a discrete layer.

10. A process as claimed in any of the preceding claims wherein the crystalline molecular sieve layer is an MFI type molecular sieve.

15

11. A process as claimed in claim 1 wherein a pre-impregnation masking layer is applied to the support prior to impregnation and is subsequently removed after impregnation.

20

12. A process as claimed in claim 11 wherein the pre-impregnation masking material is polymethylmethacrylate.

13. A process as claimed in any one of the preceding claims wherein the porosity of the support is 30% by volume or greater.

25

Sub A3)

14. A process as claimed in any one of the preceding claims wherein the crystalline molecular sieve present in the layer comprises non-contiguous molecular sieve crystals.

15. A process as claimed in any one of claims 1 to 12 wherein the crystalline molecular sieve present in the layer comprises contiguous molecular sieve crystals.

16. A process as claimed in any one of claims 1 to 13 wherein the crystalline molecular sieve present in the layer comprises contiguous molecular sieve crystals arranged as a membrane.

Sub A5)

5 17. A process as claimed in any one of the preceding claims wherein the impregnation is undertaken for a period of 20 minutes or greater.

18. A process as claimed in any one of the preceding claims wherein the porous support is partially impregnated, the impregnated support has molecular sieve seeds deposited thereon and the crystalline molecular sieve is derived from a synthesis solution which comprises colloidal silica.

10